IN THE CLAIMS

Please make the following claim substitutions:

1. (Original) A system for bi-directional transmission of optical signals over a single optical medium coupled between at least two nodes, said system utilizing a first optical transmission band for signals traveling in a first direction and a second optical transmission band for signals traveling in a second direction, said system comprising:

at least a first combiner/separator unit at a first of said two nodes, said first combiner/separator including an input port, an output port and a bi-directional input/output port for coupling to said single optical medium, a first optical filter within said first combiner/separator unit coupled to each of said ports therein, said optical filter being substantially transmissive to optical signals of said first band entering said input port and exiting on said bi-directional input/output port and said filter being substantially reflective for signals of said second band entering said bi-directional input/output port and exiting on said output port; and

at least a second combiner/separator unit at a second of said two nodes, said second combiner/separator including an input port, an output port and a bi-directional input/output port coupled to said optical medium, a second optical filter within said second combiner/separator unit coupled to each of said ports therein of said second combiner /separator unit, said second optical filter being substantially transmissive to optical signals of said second band entering said input port and exiting on said bi-directional input/output port and said filter being substantially reflective for signals of said first band entering said bi-directional input output port and exiting on said single direction output port.

2. (Original) The system of Claim 1, further including at least one intermediate node, said intermediate node comprising:

at least one said first combiner/separator unit and at least one second combiner/separator unit, and

at least a first and second optical amplifier, said output port of said first combiner/separator unit coupled to said input port of said second

combiner/separator unit through said first optical amplifier, said output port of said second combiner/separator unit coupled to said input port of said first combiner/separator unit through said second optical amplifier;

said first and second combiner/separator units being alternately coupled within said bi-directional transmission system such that pairs of said first and second combiner/separator units are utilized in combination, said bi-directional ports of said combiner/separator units being coupled to one another.

3. (Original) The system of Claim 1, wherein said optical transmission bands are L-band and C-band.

4. (Original) The system of Claim 1, wherein said first node includes a first set of one or more optical translator units for translating received wavelengths to wavelengths of said first transmission band, said optical translator units being coupled to an optical multiplexer unit and said optical multiplexer unit being coupled to said input port of said first combiner/separator unit;

said output port of said first combiner/separator unit couple to an optical demultiplexer unit, said optical demultiplexer unit coupled to a second set of optical translator units for translating wavelengths of said second transmission band to said received wavelengths.

5. (Original) The system of Claim 4, wherein said first node further includes at least one optical amplifier coupled between an output of said multiplexer and said input port of said first combiner/separator unit and at least one optical amplifier coupled between said output port of said first combiner/separator unit and an input of said demultiplexer.

6. (Original) The system of Claim 1, wherein said second node includes a first set of one or more optical translator units for translating received wavelengths to wavelengths of said second transmission band, said optical translator units being coupled to an optical multiplexer unit and said optical multiplexer unit being coupled to said input port of said second combiner/separator unit;

said output port of said second combiner/separator unit coupled to an optical demultiplexer unit, said optical demultiplexer unit coupled to a second set of optical translator units for translating wavelengths of said first transmission band to said received wavelengths.

7. (Original) The system of Claim 6, wherein said second node further includes at least one optical amplifier coupled between an output of said multiplexer and the input port of said second combiner/separator unit and at least one optical amplifier coupled between said output port of said combiner/separator unit and an input of said demultiplexer.

8. (Original) The system of Claim 1, wherein said filters included in each of said first and second combiner/separator units are thin film wide-band filters.

9. (Original): The system of Claim 3, wherein said C-band and L-band filters include a transmissive insertion loss in the range of 1.3 to 1.7 dB and reflective insertion loss in the rang of 0.3 to 0.9 dB.

10. (canceled)

11. (canceled)

12. (Original) A system for bi-directional transmission of optical signals over a single optical fiber, said system including at least two nodes having said optical fiber coupled therebetween, said system utilizing only two distinct optical transmission bands, a single one of said bands for transmission of said optical signals in one of two directions, the other of said bands for transmission of said optical signals in the opposite direction, said system comprising:

at least a first and second combiner/separator unit, at least one combiner/separator unit located at each of said two nodes, each said combiner/separator unit including an input port, an output port and a bi-directional input/output port for coupling to said single optical fiber, an optical filter within said combiner/separator units coupled to each of said ports, each said combiner/separator unit operable to direct optical signals entering said input port through said filter to said bi-directional input/output port and to reflect optical

signals entering said bi-directional input/output port off of said filter to said output port;

said optical filter in said first combiner/separator unit being substantially transmissive to a first of said two bands and substantially reflective to optical signals in said second band traveling in an opposite direction;

said filter in said second combiner/separator unit being substantially transmissive to signals in said second band and substantially reflective for signals of said first band traveling in an opposite direction; and

said first and second combiner/separator units being alternately coupled within said bi-directional transmission system such that pairs of said first and second combiner/separator units are utilized in combination, said bi-directional ports of said combiner/separator units being coupled to one another.

13. (Original) The system of Claim 12, further including at least one intermediate node, said intermediate node comprising:

at least one said first combiner/separator unit and at least one second combiner/separator unit, and

at least a first and second optical amplifier, said output port of said first combiner/separator unit coupled to said input port of said second combiner/separator unit through said first optical amplifier, said output port of said second combiner/separator unit coupled to said input port of said first combiner/separator unit through said second optical amplifier.

14. (Original) The system of Claim 12, wherein an end node in said system includes either a first or second combiner/separator unit, said end node further including a first set of one or more optical translator units for translating received wavelengths to wavelengths of one of said two distinct transmission bands, said optical translator units being coupled to an optical multiplexer unit and said optical multiplexer unit being coupled to said input port of said combiner/separator unit; and

said output port of said combiner/separator unit coupled to an optical demultiplexer unit, said optical demultiplexer unit coupled to a second set of

optical translator units for translating wavelengths of said other of said two transmission bands to said received wavelengths.

15. (Original) The system of Claim 14, wherein said end node further includes at least one optical amplifier coupled between an output of said multiplexer and the input port of said combiner/separator unit and at least one optical amplifier coupled between said output port of said combiner/separator unit and an input of said demultiplexer.

16. (Original) The system of Claim 12, wherein said filters included in each of said first and second combiner/separator units are thin film wide-band filters.

17. (Original) The system of Claim 16, wherein said C-band and L-band filters include a transmissive insertion loss in the range of 1.3 to 1.7 dB and reflective insertion loss in the range of 0.3 to 0.9 dB.

18. (Original) The system of Claim 12, wherein said transmission bands are selected from the group consisting of L-band/C-band, C-band/S-band, C1 band/C2 band and S-band/L-band.

19. (canceled)

20. (canceled)

21. (Original) A method for bi-directional transmission of optical signals over a single optical fiber coupled between two nodes, said method utilizing only two distinct optical transmission bands, a single one of said bands for transmission of said optical signals in one of two directions, the other of said bands for transmission of said optical signals in the opposite direction, said method comprising:

providing at least a first and second combiner/separator unit, at least one combiner/separator unit located at each of said two nodes, said combiner/separator units each including an input port, an output port and a bi-directional input/output port for coupling to said single optical fiber, an optical filter within said combiner/separator units coupled to each of said ports, each of said combiner separator units operable to direct optical signals entering said input port through said filter to said bi-directional input/output port and to reflect

optical signals entering said bi-directional input/output port off of said filter to said output port

said optical filter in said first combiner/separator unit being substantially transmissive to a first of said two bands and substantially reflective to optical signals in said second band traveling in an opposite direction,

said filter in said second combiner/separator unit being substantially transmissive to signals in said second band and substantially reflective for signals of said first band traveling in an opposite direction; and

alternately coupling said first and second combiner/separator units within said bi-directional transmission system such that pairs of said first and second combiner/separator units are utilized in combination, said bi-directional ports of said combiner/separator units being coupled to one another.

22. (Original) The method of Claim 19, wherein said transmission bands are selected from the group consisting of: L-band/C-band, C-band/S-band, C1 band/C2 band and S-band/L-band.

23. (New) Apparatus, comprising:

means for filtering, and

means for transmitting a first signal in a first signal band from a first path onto an optical medium via said means for filtering, said means for filtering being substantially transmissive to signals in said first signal band and reflecting a second signal in a second signal band received from said optical medium onto a path separate from said first path.

24. (New) The apparatus of Claim 23, wherein one of said first and second signals is a C-band signal and the other is an L-band signal.

25. (New) The apparatus of Claim 23, wherein the means for transmitting said first signal comprises:

means for modulating, multiplexing, and amplifying a plurality of input signals to form said first signal, and

wherein said apparatus further connects to said optical medium.

26. (New) The apparatus of Claim 25, further comprising means for amplifying, demultiplexing, and demodulating said second signal.

27. (New) The apparatus of Claim 26, wherein the means for filtering comprises:

an input port for receiving said first signal from said first path,

a bi-directional input/output port for applying said first signal to said optical medium and for receiving said second signal from said optical medium, and

a reflection port for applying said second signal to said separate path.

28. (New) Apparatus for use in a communication system of a type in which optical signals in one signal band are transported in one direction along an optical transport medium and signals in a second signal band are transported in the opposite direction of said optical transport medium, said apparatus comprising:

a first signal path,

a second signal path, different from said first path, and

an optical filter that allows the signals traveling in said one direction to flow from said first path onto said transport medium and that reflects the signals traveling in said opposite direction onto said second path.

29. (New) The invention of Claim 28 wherein:

said first signal path includes means for multiplexing and amplifying a plurality of input signals to form said signals traveling in said one direction,

said signals traveling in said opposite direction include a plurality of multiplexed incoming signals, and

said second signal path includes means for demultiplexing and amplifying said multiplexed incoming signals.

30. (New) The invention of Claim 29 wherein one of said signal bands is the C band and the other of said signal bands is the L band.